Programme Information		
Programme Title	Programme Code	HECoS Code
Human Molecular Genetics	A3BD	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MSc	1 Calendar year (12 months)	Full Time	Annually in October	90	180
PG Certificate - A3BDC	N/A	N/A	N/A	30	60
The PGCert is an exit award and is not available for entry. You must apply to and join MSc.					

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Medicine
Teaching Institution	Imperial College London	Department	Metabolism, Digestion and Reproduction
Associateship	Diploma of Imperial College (DIC)	Main Location(s) of Study	Hammersmith Campus
External Reference			
Relevant QAA Benchmark Statement(s) and/or other external reference points		Master's Awards in Human Molecular Genetics	
FHEQ Level		Level 7 - Master's	
EHEA Level		2nd Cycle	
External Accreditor(s) (if applicable)			
External Accreditor 1:	N/A		
Accreditation received:	N/A	Accreditation renewal:	N/A
Collaborative Provision			
Collaborative partner	Collaboration type	Agreement effective date	Agreement expiry date
N/A	N/A	N/A	N/A
Specification Details			
Programme Lead		Dr Toby Andrew Dr Bahar Sahin	

Student cohorts covered by specification	2025-26 entry
Date of introduction of programme	October 19
Date of programme specification/revision	October 23

Programme Overview

The MSc in Human Molecular Genetics is a 1-year full time course aimed at undergraduate scientists, who are interested in a career in genetics, either in academic, industry or healthcare-based research.
The MSc is based in the Department of Metabolism, Digestion and Reproduction and focuses on understanding the genetic and molecular mechanisms that underlie rare and common human diseases. The students on this course learn genetic theory and application for all aspects of genomics and how to develop and test well-designed genomic hypotheses. Typically, 20-30 students are admitted on this course each year and are selected based upon prior experience and academic qualifications, usually in the life sciences.

The course is delivered in four taught modules and one research project: Molecular Genetics; Genetics of Rare and Common Diseases; Analytical Methods in Human Genetics and Genomics in the Laboratory. These modules cover topics on cell biology, gene regulation, genetic variation, Mendelian disorders, statistical methods applied to genetics, bioinformatics, computer science, genomics, molecular technologies, cancer genetics, diabetes, epigenetics and more. The course content is delivered in the form of lectures, tutorials and laboratory practicals led by research experts in the field at Imperial College, London. The course contents are updated each year to keep up with developments in the field, with recent additions in areas such as precision medicine and genome editing.
Students also undertake a 6-month research project in one of the participating laboratories (based at Imperial, KCL, UCL, the Crick, Oxford, Cambridge and other universities), for which the student will write their thesis and have an oral examination to defend their dissertation and assess their critical understanding of their thesis and the programme content. It is possible for projects to be carried out partly or wholly at an external organisation

Learning Outcomes

Once awarded the MSc in Human Molecular Genetics you will be able to demonstrate the following, which reflect the module learning outcomes and assessment methods used:

- Develop scientific written and presentational communication skills for advanced topics in molecular genetics (M1/M2)
- Present a critical understanding for the genetic basis to rare and common disease, including appraisal of current genetics and genomics literature (M1/M2)
- Analyse and interpret genomic data using taught statistical, bioinformatic and advanced computer science techniques (M3)
- Formulate testable hypotheses to assess potential causal mechanisms at a molecular level and apply genetic and genomic techniques in the laboratory to answer specific research questions (M3/M4)
- Be able to begin to demonstrate original thinking (M1-M5)
- Show independent learning and study skills, required for continuing professional and scientific development, and an ability for research led, self-directed and autonomous study (M5)
- Be able to present key concepts in concise written and verbal format to an audience with different disciplinary or lay backgrounds (M1-M5).

In short, the MSc programme will equip you with the ability to think more critically and aspire to become a better scientist.

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial degree programme. The Graduate Attributes are available at:
https://www.imperial.ac.uk/about/education/our-graduates/

Entry Requirements

Academic Requirement	Normally a 2.1 or first-class undergraduate degree from a UK university or an equivalent overseas qualification in science-related subject

	For further information on entry requirements, please go to www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/accepted-qualifications/
Non-academic Requirements	3 years relevant work experience (if academic qualifications above are not met in full). Applicants who do not meet the academic requirements specified above, but who have substantial relevant industry or equivalent experience may be admitted by the Department making a special case on behalf of the student to the university.
English Language Requirement	Higher requirement IELTS score of 7.0 overall (minimum 6.5 in all elements).
Admissions Test/Interview	You are required to provide a completed Imperial's Post Graduate application form, a student written application letter explaining why you wish to join the MSc programme and provide two academic references. The programmes admissions team scrutinise and discuss each application based upon applicant qualifications, personal statement and two academic references. If the application is good, but more details are required, we may invite you to undertake an online interview.

The programme's competency standards documents are available from the department.

Learning & Teaching Approach

The MSc learning schedule is 6-months taught and a 6-months research project placement. Class size is restricted to 20-30 students each year to ensure the numbers of supervisors offering state-of-the-art genetic research placements each year. You will also be allocated an academic tutor for the year (each study group with 3-4 students) as part of our tutor-based learning to facilitate research-led learning and regular staff contact.
The 6-months taught includes a broad range of formative and summative learning methods with lectures, workshops, practical laboratory classes (3-4 weeks in the lab for the Genomics in the Laboratory module), tutorials, study group learning, coursework assignments, flipped classrooms, journal clubs, a class conference field trip &/or research symposia, online learning materials (interactive learning features on our site, embedded Panopto recordings and virtual learning exercises), student presentations and written examinations.
The 6-month student research project is widely regarded by students as the most inspiring and demanding experience on the MSc in Human Molecular Genetics. We take great care in whom we commission for research project proposals as we recognise the success of these projects are predicated upon the quality of our academic supervisors as well as student ability and motivation.

Overall Workload
Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary, the following provides an indication of how much time you will need to allocate to different activities at each level of the programme. At Imperial, each ECTS credit taken equates to an expected total study time of 25 hours. Therefore, the expected total study time is approximately 2,250 hours per year.
During Term 1 you will typically spend about 25% of your time in lectures and study group learning sessions (around 200 hours), 25% of your time in laboratory and computer practicals and 50% of your time undertaking course-directed private study. Term 2 is similar, but with more time spent in private study and participating in advanced laboratory practicals. During March-September you will undertake a 6-month research project placement, which is expertly supervised, will be self-driven and involve nearer 90% independent research and study time.

Assessment Strategy

Assessment Methods

Range of assessment methods used:

- The MSc in HMG has been developed to provide a carefully balanced combination of formative and summative assessment throughout the year. The programme is designed to challenge and push you to your full potential, while also ensuring a supportive learning environment. We are very proud of our Tutor system, which we believe reflects exemplary educational practice and ensures all the stress points during the year are well managed and no student is left behind.

- Starting with the MSc induction week, we outline and initiate our expectations of PG students playing an active role in their learning and encourage you to view the MSc as an opportunity for the broadest possible education and scientific training in genetic research.
- To encourage students to be proactive learners and not be too narrowly strategic (e.g. solely focusing upon summative assessments), we engage the class in a great deal of formative assessment work throughout the year (for example, essays with detailed written and verbal feedback provided). We ensure that all summative assessments are well paced and spread out during the year to allow sufficient time to engage with and assimilate advanced learning materials.

Assessment methods used during the year include course work, written exams, essays, computer-captured closed short answer and open book tests, presentations (poster, oral and in the lab) and assessed practical work. Teacher and peer formative assessment methods are used.

Assessment schedule overview:

Module:	**Title:**	**ECTS:**
Module 1:	Molecular Genetics	7.5
Module 2	Genetics of rare and common disease	7.5
Module 3	Analytical Methods in Human Genetics	15
Module 4	Genomics in the Laboratory	15
Module 5	6-Month research project and thesis	45

Summative assessment methods involve innovative and engaging teaching methods in addition to written examinations (data interpretation and essay writing skills). It should also be noted that the written essay exams involve critical essay writing and informed application, not just recall. The awarded marks for each module reflect the awarded ECTS points. For example, the 6-month research project is assessed with marks awarded to the thesis (60%), the mid-project presentation to peers and academic audience (20%) and oral examination to assess the student's understanding of their research project and critical assimilation of the course content (20%), all of which collectively contribute to 50% of the overall MSc (45/90 ECTS). Additional face-to-face teaching time is provided in the "Analytical Methods in Human Genetics" and "Genomics in the Laboratory" modules (15 ECTS each), since students are generally less familiar with these more specialised, practical and teaching intensive subjects. The tutorial exercises that students undertake (at their own pace, in their own time) and then discuss more advanced questions in their study groups, relate to Module 1 and 2 content. The study group exercises are designed to ensure the students study the relevant chapters of the recommended course textbooks and critically engage with the learning materials provided.

The overall MSc awarded marks are as follows: assessment/examinations for 4 taught modules (~25%), mid-project presentation (10%), oral examination (10%), research project thesis (30%) and course work (~25%). Overall, this equates to approximately **50% examination** and **50% thesis and course work**.

Academic Feedback Policy

We follow best educational practice using a tutor group system, which ensures regular academic and informal contact between staff and students, providing a supportive learning environment, regular feedback and pastoral care. Mechanisms for providing prompt feedback to students on their performance in course work and examinations include:

1) Detailed written and verbal feedback on two formative essays during Terms 1 and 2. One essay is open (untimed) and the second essay question is seen beforehand but written under timed exam conditions. Both prepare students very well for what is expected of them for scientific writing and is assessed by the two essay exams (Modules 1 and 2)
2) Tutor group and study group exercises, journal discussion and assignments throughout the year - five set study group exercises, two formative essays, group poster preparation and presentation, written feedback and study group discussion of research project synopses written by each student
3) Verbal feedback at the time of assessment (e.g. to the study group for group preparation poster presentations)
4) Written feedback and recommended reading during formative learning (e.g. for self-test exercises on the VLE and for computer marked assessments)
5) Grades are provided after exams and tests within 2-4 weeks, depending on the workload and number of examiners involved
6) A minimum of one staff-student representative meeting is held each year to feedback comments from the class

We provide in depth feedback to students throughout the year to encourage students to reflect upon and to improve their progress. Our feedback methods include:

- Individual written comments;
- Whole class feedback in seminars, tutorials and workshops (e.g. discussion of common errors; sample/model answers) or by written feedback;
- Oral feedback in laboratory sessions and while on research placements;
- Electronic feedback on computer-based tests and quizzes;
- Peer feedback as part of an assessment task;
- On-going conversations in meetings with Personal Tutors, lecturers and programme staff

Efficiency, usefulness and timeliness of feedback procedures are considered on the course evaluation form completed by students and are discussed at the course Staff-Student committee meetings, where student representatives are invited to feedback class comments.

Re-sit Policy
Imperial's Policy on Re-sits is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

Mitigating Circumstances Policy
Imperial's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

Additional Programme Costs		
This section should outline any additional costs relevant to this programme which are not included in students' tuition fees.		
Description	Mandatory/Optional	Approximate cost
Accommodation costs, if required to relocate for 6-month research project. You may be expected to pay for travel commuting or relocation costs if you chose a project that is outside Imperial.	Optional	

Programme Structure[1]					
Year 1 – FHEQ Level 7 **You study all core and compulsory modules.**					
Code	Module Title	Core/ Compulsory	Group*	Term	Credits
META70017	Molecular Genetics	Compulsory		Autumn-Spring	7.5
META70018	Genetics of Rare and Common Disease	Compulsory		Autumn-Spring	7.5
META70019	Analytical Methods in Human Genetics	Compulsory		Autumn-Spring	15
META70020	Genomics in the Laboratory	Compulsory		Autumn-Spring	15
META70021	Human Molecular Genetics Research Project	Core		Spring-Summer	45
				Credit Total	90

* 'Group' refers to module grouping (e.g. a group of electives from which one/two module(s) must be chosen).

[1] **Core** modules are those which serve a fundamental role within the curriculum, and for which achievement of the credits for that module is essential for the achievement of the target award. Core modules must therefore be taken and passed in order to achieve that named award. **Compulsory** modules are those which are designated as necessary to be taken as part of the programme syllabus. Compulsory modules can be compensated. **Elective** modules are those which are in the same subject area as the field of study and are offered to students in order to offer an element of choice in the curriculum and from which students are able to select. Elective modules can be compensated.

Progression and Classification

This is a full time MSc programme with 5 complementary modules, four of which are Compulsory (M1-4) and one Core (M5). Students are required to Pass all 5 modules to obtain an MSc certificate.

Award and Classification for Postgraduate Students

Award of a Postgraduate Certificate (PG Cert)

We are now able to offer a PGCert exit award (30 ECTS at Level 7) for those students who attend the MSc Programme, but subsequently decide to leave the MSc early before undertaking Module 5 (the 6-month research project, worth 45 ECTS). In order to be awarded a PGCert, equivalent to 30 ECTS, the student will need to either:

1) Pass Modules Three (15 ECTS) and Four (15 ECTS) or;
2) Pass Modules One (7.5 ECTS) and Two (7.5 ECTS) along with one additional 15 ECTS module (i.e. Module 3 or 4).

Award of a Masters Degree

To qualify for the award of a postgraduate degree, you must have:

1. accumulated credit to the value of no fewer than 90 credits at Level 7
2. and no more than 15 credits as a Compensated Pass;
3. met any specific requirements for an award as outlined in the approved programme specification for that award

If you obtain <50% for META70021, at the discretion of the exam board, you may re-submit your project thesis and META70021 will be capped at a Pass. Under these circumstances the MSc grade awarded will reflect the total MSc marks (including the capped pass mark for META 70021).

Classification of Postgraduate Taught Awards

The university sets the class of Degree that may be awarded as follows:

1. **Distinction**: 70.00% or above.
2. **Merit**: 60.00% or above but less than 70.00%.
3. **Pass**: 50.00% or above but less than 60.00%.

For a Masters, your classification is determined through the Programme Overall Weighted Average and the designated dissertation or final major project module meeting the threshold for the relevant classification band

Your degree algorithm provides an appropriate and reliable summary of your performance against the programme learning outcomes. It reflects the design, delivery, and structure of your programme without unduly over-emphasising particular aspects.

Programme Specific Regulations

N/A

Supporting Information
The Programme Handbook is available from the department.
The Module Handbook is available from the department.
Imperial's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/accepted-qualifications/
Imperial's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance
Imperial's Academic and Examination Regulations can be found at: www.imperial.ac.uk/about/governance/academic-governance/regulations
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Imperial College London is regulated by the Office for Students (OfS) www.officeforstudents.org.uk/advice-and-guidance/the-register/
This document provides a definitive record of the main features of the programme and the learning outcomes that you may reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for prospective and current students, academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.